FSA Integration Partner

United States Department of Education
Federal Student Aid

We Help Put America Through School

eZ-Audit Reports Release Test Plan

Version 1.0

08/13/2004

Revision History

Date	Version	Description	Author
02/5/2004	1.0	Initial version created for delivery to FSA on 08/13/2004.	Seth Sinclair

I. Introduction

Purpose

The purpose of this Test Plan is to present the testing approach for the Reports Release of the Federal Student Aid (FSA) eZ-Audit application. The Test Plan defines the test phases, passes, and scripts to be tested.

This test plan provides an overall framework for testing the Reports Release of the eZ-Audit application and is not intended to provide step-by-step instructions for every aspect of the testing effort.

Test Objectives

The objectives of the eZ-Audit Reports release testing effort are to:

- Verify the deployed Reports satisfy the requirements as defined in the eZ-Audit Reports Release Requirements and Design Documentation
- Minimize risk by finding and fixing problems during the development process in order to ensure that a quality product is delivered to FSA

Process

The process used to structure the test activities is illustrated in the diagram below and explained in the following sections. The eZ-Audit Test team will carry out this process.

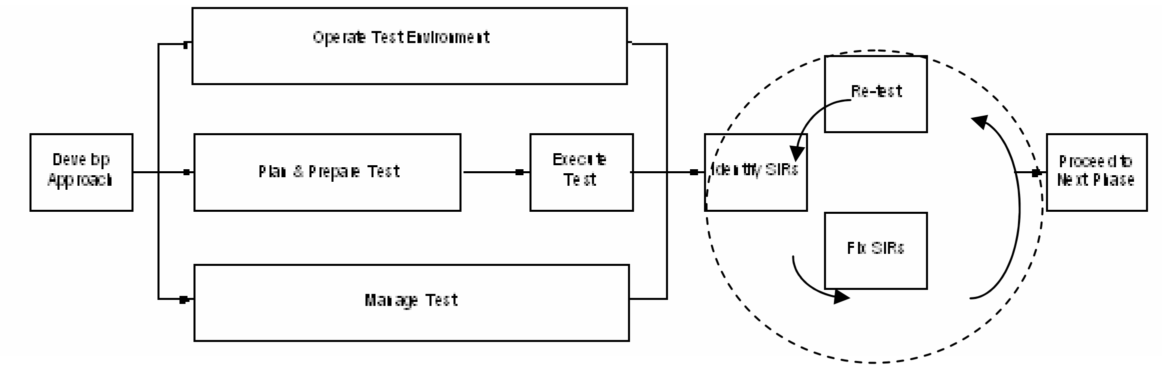

Figure 1, Test Process

Develop Approach

The *Develop Approach* phase consists of the following tasks:

- Define the test approach and detailed test plan
- Identify the test phases
- Define the scope and objectives of the test phases
- Identify the phase containment strategy and entry and exit criteria
- Identify risks associated with the test effort

Plan & Prepare Test

The *Plan & Prepare Test* phase consists of the following tasks:

- Develop the test schedule
- Identify test conditions
- Define expected results
- Create test scripts
- Define test data
- Verify that the conditions, scripts, and data validate functional and technical requirements

Execute Test

The *Execute Test* phase consists of the following tasks:

- Execute test scripts for each phase
- Verify expected results
- Log System Investigation Requests (SIRs)
- Update conditions, scripts, and data with discrepancies
- Re-test SIR fixes

Manage Test

The *Manage Test* phase consists of the following tasks:

- Manage issues
- Facilitate/coordinate test activities
- Track progress against the test schedule
- Report status

Operate Test Environment

The *Operate Test Environment* phases consist of the following tasks:

- Allocate environment resources (both human and physical assets)
- Perform configuration management activities

II. Test Approach

This section defines the phases of testing that will take place.

Test Phases

Test Stage	Objective	Responsibility
Unit Test	• Test individual eZ-Audit reports • Verify components correctly implement requirements and design specifications	eZ-Audit Development Team
Reports System Test	• Ensure that each report in the Release has correct prompts/columns and returns valid data as defined in requirements and design	eZ-Audit Test Team and Development Team
User Acceptance Test (UAT)	• Demonstrate to business owners that the Reports Release performs as expected and meets all requirements • Capture user feedback for future analysis	eZ-Audit Test Team / FSA Project Manager / FSA Testing Participants

Table 1, Test Phases

Unit Testing

Unit testing will be conducted in the development environment. The Development Team will create basic test conditions from the Reports Release requirements. The developer responsible for the module will perform the unit test and identify/resolve errors related to the independent operation of the program.

Entry Criteria

Unit test begins as reports become available for testing.

Exit Criteria

Exit criteria will be the successful completion of all test conditions. There will be no SIRs generated by unit testing.

Reports System Test

The eZ-Audit Test Team will be responsible for creation and execution of Reports System Test scripts. The test scripts will be developed using the Reports Release requirements and Design Document. The Reports System test will be conducted in the eZ-Audit test environment.

Reports System test will consist of three test passes. The first test pass is a full test cycle. The second and third test passes are a full test cycle executed to re-test failed items and confirm successes from the previous pass. The Test Team will continue to add additional test passes until all test conditions are met successfully.

The Reports Release Testing will include the following scripts for new Reports that will be developed with this release:

1. Detailed Submissions Pending QC / Pending QC Approval
2. Resubmissions Due by School

3. Detailed Weekly QC Assessment
4. Summary Weekly QC Assessment
5. Change in Auditor
6. Detailed Report of Schools on Administrative Stay
7. Open Submissions by School
8. Non-Assigned Submissions in Co-Team Lead Queue
9. Assigned but Not Approved Schools
10. Incomplete Post-Approved Records
11. Password Reset Detail by School
12. Users Deleted

Scripts will also be created for the following existing Reports that will be modified with this release:

1. Financial Statement Summary
2. Compliance Audit Summary
3. Delinquent / Missing

Entry Criteria

- Unit testing is complete per defined exit criteria
- Test conditions and system test scripts are complete
- Reports Release code and test data are migrated to the eZ-Audit test environment

Exit Criteria

- All system test scripts executed
- SIRs identified and documented
- The number of open SIRs falls within the following threshold guidelines:

Quantity	SIR Level
0	1 – High
Less than 15% of logged SIRs unresolved	2 - Medium
No defined limit	3 – Low
NA	4 – Enhancement

Table 2, Reports System Test Exit Criteria

User Acceptance Test

Due to the short timeframe for this release, a formal UAT will not be conducted. FSA subject matter experts will be invited to participate in Pass 3 of the Reports System Test. The list of participants is TBD.

Test Conditions

Test conditions define the tests to be performed. Test conditions are written using the Reports Release Requirements and Design Document. The test conditions are developed so that they are repeatable and reusable. Test conditions must be repeatable so that errors can be reproduced and retested under the same circumstances. Conditions will be submitted with Deliverable 116.8.2.

Test Scripts

Test scripts are executed within each test cycle. The scripts test the basic system functionality derived by the system level requirements. Test scripts are documented in terms of a business function or technical requirement and are based on individual test conditions.

Test Script Development

The process for developing system test scripts will be as follows:

1. Identify Test Scenarios / Conditions
2. Write Test Scripts for test execution
3. Map Test Conditions and Scripts to Use Cases [which trace to requirements]
4. Create baseline Test Data

Test Script Standards

Each test script will contain the following information:

- Script Name & Number – assigned by script writer
- Description
- Created By
- Tested By – person who is performing the actions for a test condition
- Test Date – written on the printed script by the tester
- Prerequisites – reference data or transactions that must exist prior to script execution

For each step within the script, the following information is shown in table format:

- Step number – auto-assigned by the script template
- Action – detailed instructions for how to accomplish the step
- Expected Results – describes how the system should respond to the action
- Pass/Fail – describes whether the expected and actual results match for a condition. Pass means that the expected and actual results match. Fail indicates the expected and actual results did not pass for a condition.
- Comments – notes about the test condition
- SIR # - related SIR # for a defect logged against the failed test condition. If the condition fails for more than one reason, multiple SIRs will be logged.
- Test Conditions – documents test conditions related to the step, where applicable

Requirements Traceability

The eZ-Audit test team will develop a Requirements Traceability matrix to demonstrate that the test validates all Reports Release requirements. The matrix maps each requirement to one or more Test Conditions. Each condition is then mapped to a test script. The Reports Release matrix will be submitted with deliverable 116.8.2 Reports Build/Test Preparation.

Baseline Test Data

The eZ-Audit test team identifies and documents data needs during the process of creating Test Conditions and Test Scripts. The eZ-Audit development team creates a baseline copy of the database with the requested data and is responsible for refreshing the test database with this baseline before each test pass begins. This includes:

- Users
- Institutions
- Historical Submissions
- Static informational data (e.g. finding codes, dropdown values, workflow states, etc)

III. System Investigation Requests (SIRs)

Whenever a test condition or test script step does not return the expected result, the tester will log the discrepancy between the expected and actual result as a System Investigation Request, or SIR. SIRs will be logged and tracked in a central repository, or SIR database, using Rational ClearQuest. The SIR database will include a long and short description of the issue (including the actual and expected results), its severity and status, the affected test area or module, the test phase, test pass, and tester.

SIR Severity

The following table contains the SIR severities and definitions:

ID	Label	Description
1	**High**	The anomaly results in a failure of the complete software system, a subsystem, or a software module within the system. There is no way to make the failed component(s) work.
2	**Medium**	The anomaly does not result in a failure, but causes the system to produce incorrect, incomplete, or inconsistent results, or the anomaly impairs system usability. There is an acceptable alternative that will achieve the desired results.
3	**Low**	The anomaly does not cause a failure, does not impair usability, and the desired processing results are easily obtained by working around the anomaly. The anomaly may also be the result of non-conformance to a standard or related to the aesthetics of the system.
4	**Enhancement**	A request to modify the system to operate differently than defined in the requirements or Use Cases. Enhancements will be reviewed for addition to the eZ-Audit requirements matrix for future consideration. See section "Change Control Board Process."

Table 3, SIR Severity Definition

SIR Status

The following table contains the SIR Status levels that will be used during this effort and a definition of each:

SIR Status	Definition
Opened	The SIR was created and is awaiting assignment or review.
In-Progress	The SIR was assigned and that resource is currently working on its resolution.
Resolved	Corrective action was completed and the SIR is awaiting validation.
Closed	Corrective action has been completed and validated.
Postponed	The CCB agreed to postpone the corrective action on this SIR to a later release.
Duplicate	The issue identified in this SIR is identical to another open SIR, and the resolution to the duplicate SIR will be tracked through the

SIR Status	Definition
	original open SIR.
Rejected	The SIR is not valid because it did not map to a business requirement.

Table 4, SIR Status Definition

Re-test SIR Fixes

As SIR fixes are completed, the script in which the SIR was encountered will be re-tested. These SIRs may have originated from an earlier pass, the same pass, or from another script that has one or more components in common. The Test Team will coordinate with the Development Team to group related issues together, thus minimizing the delay of executing the next pass of the test script.

SIR fixes will be re-tested with the test scripts. After conducting a re-test, SIRs that fail are reopened and newly identified SIRs are logged in the SIR database. Additional passes will continue to be conducted, as appropriate, until the exit criteria are achieved for each phase.

Change Control Process

During the testing phase, testers may identify requests to add or modify requirements. Requested changes will be logged as Level 4 SIRs and discussed by the Change Control Board (CCB). Changes that are related to existing requirements may be assigned for remediation. Changes that result in a new requirement will be noted as an enhancement and will either be postponed to a future release or will be negotiated with the FSA Project Sponsor for inclusion into the current release. These types of changes may result in impacts to project scope, including cost and timeframe.

IV. Detailed Test Plan

Reports System Test Execution

The Test team will execute Reports system test scripts according to the step-by-step directions in each script. Scripts that pass will be signed off and stored in a binder for documentation purposes.

Test Passes

A test pass is defined as one full test execution cycle. Development remediation activities and baseline data refresh are conducted between passes within the system test phase. Additional passes will be run within a test phase until the test meets the defined exit criteria.

Test passes will be performed in steps. A pass contains the following steps:

1. The test team executes an environment script to verify that the test site is stable (execution of the environment script is at the discretion of the Test Team Lead)
2. The tester executes the test scripts
3. The tester enters a SIR when results from the test deviate from what is expected, including script number, data, steps leading up the SIR, and screen prints (where applicable)
4. The Test Team Lead notifies the Development Team when the test pass is complete
5. The Development Team runs the SIR report at the end of the pass
6. The Development Team performs an impact analysis on the SIR list
7. SIR fixes are completed and moved into the testing environment according to Configuration Management guidelines
8. The Development Team updates the SIR database with the SIR status information
9. The Development Team notifies the Test Team that testing may resume
10. The Test Team begins a new pass and continues this process until the exit criteria have been achieved for the phase

If a critical error occurs within a test pass that prevents the entire set of scripts from being executed and the fix requires lengthy remediation, the pass will be considered complete and the SIR resolution phase will begin. Once the SIR fixes are migrated into the test environment, a new pass will begin. The beginning of a new pass will be at the discretion of the Test Team Lead, and a new pass may begin with unresolved SIRs outstanding. The amount of time necessary to complete a test pass will vary depending on the number of outstanding SIRs and scripts remaining to be tested.

Testing Schedule

The test schedule is designed to meet the Reports Release go-live date of 09/19/2004. The following table depicts the activities and events to be conducted for the Reports Release test.

Test Phase	Planned Dates
Execute System Test:	**9/2 – 9/10**
Pass 1	9/2
Fix Cycle	9/3
Pass 2	9/6
Fix Cycle	9/7
Pass 3 & UAT	9/8
Fix Cycle	9/9
Final Test/Code Complete	**9/10**
Code Freeze	**9/13 – 9/18**
Reports Release Code Available in Production	**9/19**

Table 5, Test Schedule